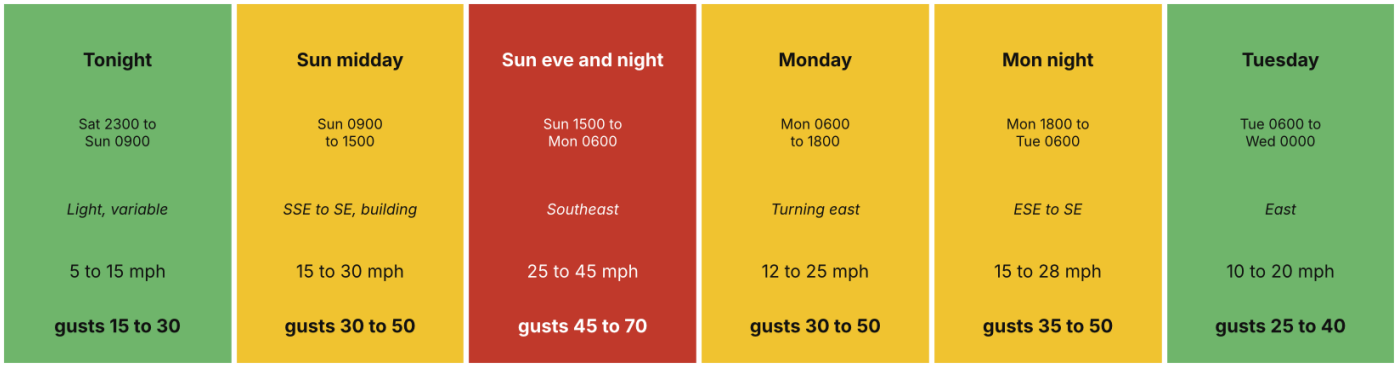
Prepared for the Lake Untersee field team (D. T. Andersen, SETI Institute). Analysis and forecast by Claude, an AI model made by Anthropic, working from the sources above. This is a field planning aid, not an official forecast. Conditions in the Untersee basin can change faster and more violently than any model resolves.

Lake Untersee, Antarctica: Three-Day Weather Forecast

Field camp at 71.33 S, 13.46 E, 610 m. Issued 2235 UTC Saturday 28 November 2026. Valid 2300 UTC Saturday to 0000 UTC Wednesday 2 December. All times UTC.

Headline. The 26-hour southerly gale at camp has ended. It is nearly calm now, and tonight should stay quiet. A storm passing along the coast brings the wind back on Sunday, from the southeast: building from late morning, strongest from Sunday afternoon through early Monday, with gusts of 45 to 70 mph (72 to 113 km/h, 20 to 31 m/s). The wind turns east and eases on Monday. Tuesday is the lightest day. No snowfall is expected.

Wind outlook



Green: light. Yellow: moderate and gusty. Red: strong. Mean wind and gusts are for the camp, 2 m above the lake ice.

Period (UTC)	Wind from	Mean wind	Gusts	Temp (C)	Sky	What to expect
Tonight Sat 2300 to Sun 0900	Light and variable	5 to 15 mph 8 to 24 km/h 2 to 7 m/s	15 to 30 mph 24 to 48 km/h 7 to 13 m/s	-2 to -5	Clear	Quiet. Small chance of a short southerly pulse with gusts of 35 to 45 mph.
Sunday midday 0900 to 1500	South-southeast, backing southeast	15 to 30 mph 24 to 48 km/h 7 to 13 m/s	30 to 50 mph 48 to 80 km/h 13 to 22 m/s	0 to +3	Cloud increasing	Storm arrives. Pressure falls; wind settles in the southeast and builds.
Sunday evening and night 1500 to Mon 0600	Southeast	25 to 45 mph 40 to 72 km/h 11 to 20 m/s	45 to 70 mph 72 to 113 km/h 20 to 31 m/s	-1 to -4	Partly cloudy	PEAK. Strongest about 1800 to 0300. Isolated higher gusts possible.
Monday 0600 to 1800	Turning east	12 to 25 mph 19 to 40 km/h 5 to 11 m/s	30 to 50 mph 48 to 80 km/h 13 to 22 m/s	-2 to +1	Clearing	Easing as the wind turns east and the camp falls into the lee of the east wall. Gusty.
Monday night 1800 to Tue 0600	East-southeast to southeast	15 to 28 mph 24 to 45 km/h 7 to 13 m/s	35 to 50 mph 56 to 80 km/h 16 to 22 m/s	-3 to -6	Clear	A second, weaker southeast pulse.
Tuesday 0600 to Wed 0000	East	10 to 20 mph 16 to 32 km/h 4 to 9 m/s	25 to 40 mph 40 to 64 km/h 11 to 18 m/s	-3 to 0	Clear	Lightest day. Storm continues aloft and at the coast.

Forecast notes

- **Quietest periods:** tonight through about 0900 UTC Sunday, and Tuesday.

- **Strongest period:** Sunday 1500 UTC to Monday 0600 UTC, peaking about 1800 to 0300 UTC.

- **Gustiness:** winds in this basin are uneven. During the gale, lulls of up to an hour ended abruptly with gusts near 60 mph (97 km/h, 27 m/s).

- **Upper limit:** gust ranges describe the expected case. Isolated gusts well above them occur at this site and are not resolved by any model.

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The data behind the forecast

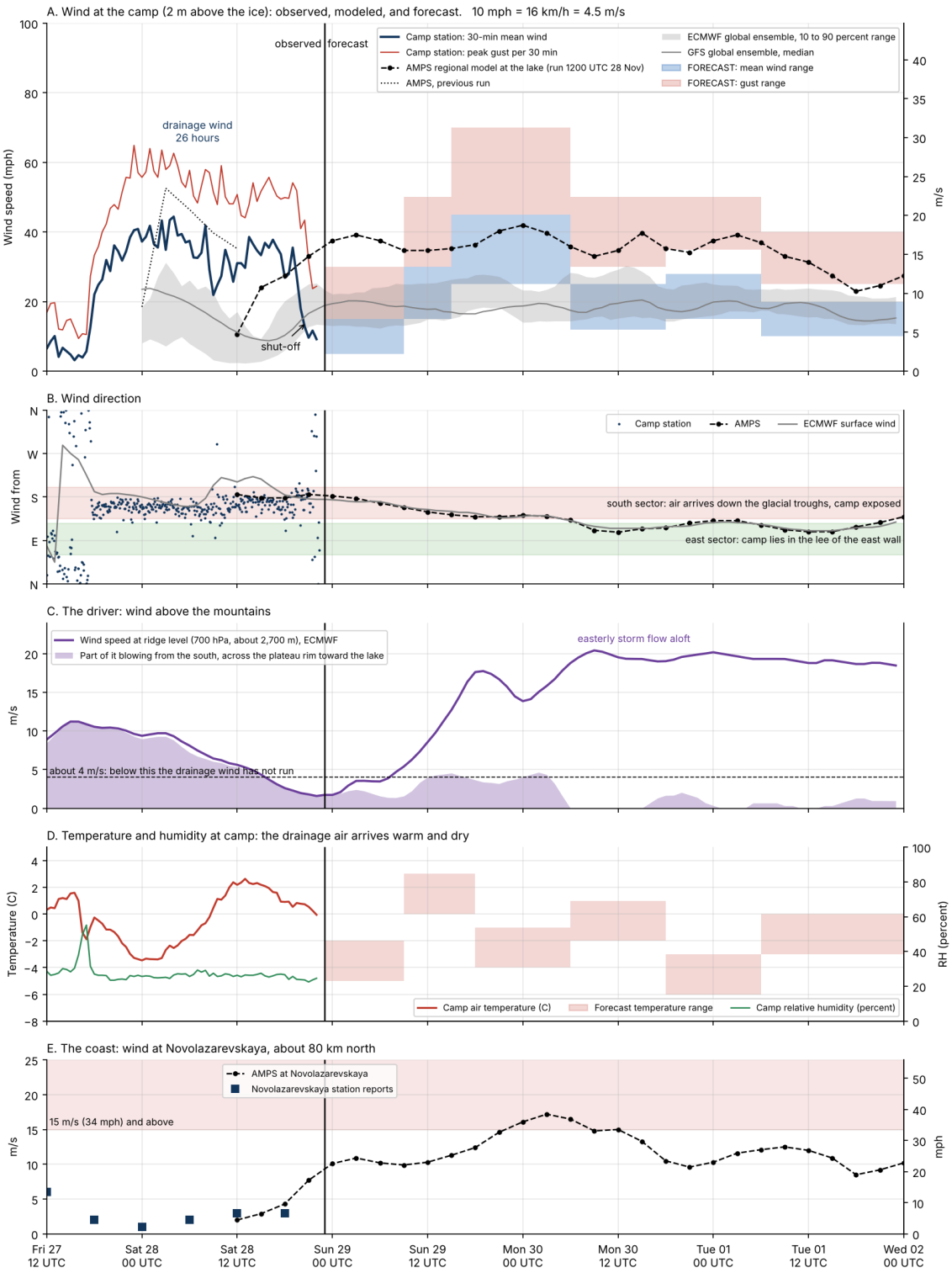


Figure 2. (A) Wind measured at the camp station against the regional AMPS model, two global ensembles, and this forecast. The global models carry 10 to 25 mph throughout and missed the gale entirely; AMPS captured it but kept it running after it stopped. (B) Wind direction decides exposure: southerly air reaches camp down the glacial troughs, while easterly flow leaves camp in the lee of the east wall. (C) Wind above the mountains. The gale ran while a southerly of 8 m/s or more crossed the plateau rim and stopped when that flow died. (D) The descending air is warm and dry. (E) The coast.

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Discussion 1. The drainage wind of 27 to 28 November, and why it stopped

What was measured. A southerly wind reached camp between 1730 and 1800 UTC on Friday 27 November and blew for 26 hours. The camp station averaged 34 mph (55 km/h, 15 m/s) over the event, with seven consecutive hourly means of 38 to 42 mph (61 to 68 km/h, 17 to 19 m/s) from 2300 to 0600 UTC. The strongest gust was 72.3 mph (116 km/h, 32.3 m/s) between 0125 and 0130 UTC on Saturday. Direction held between 150 and 175 degrees. Through all of it the sky was clear, and Novolazarevskaya, on the coast about 80 km north, reported 1 to 3 m/s.

What it was. This was a drainage (katabatic) wind, not a storm. The ice sheet south of the lake stands at 1,850 to 2,050 m, some 1,300 to 1,400 m above the lake ice, and the mountain rim between them is cut by three troughs (Figure 3). Cold air from the plateau pours through these gaps and accelerates down them. Air sinking that far is compressed and warms by up to about 1 C per 100 m, so it arrives warm and dry. The station shows the signature: relative humidity fell from 43 to 27 percent within an hour of the onset and stayed between 21 and 33 percent, and the temperature held near -3 C through the windiest hours of the night.

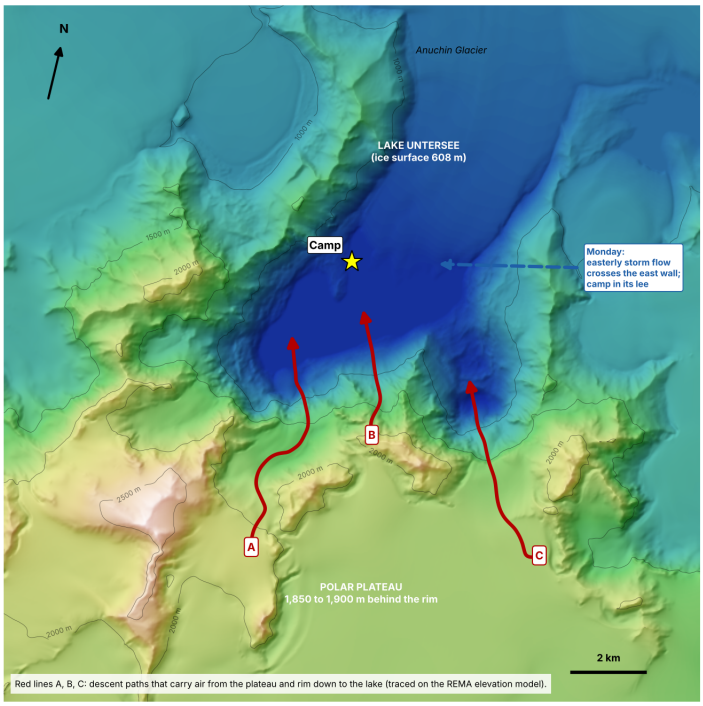


Figure 3. Terrain and air paths (REMA 32 m elevation model). Red lines A, B and C are descent paths traced on the elevation model from the plateau and rim to the lake. Path A drains the largest area; path B opens 2.2 km south-southeast of camp, directly upwind in a southerly. The blue arrow marks the easterly flow expected on Monday, when the camp lies in the lee of the east wall.

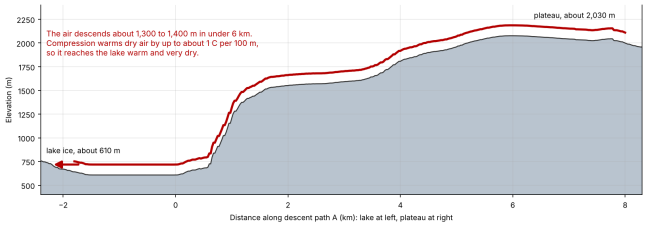


Figure 4. Elevation along path A, lake at left.

Why it stopped. The drainage needs help from above. Through the gale a southerly of 8 to 11 m/s blew at ridge height (about 2,700 m) and pushed plateau air across the rim (Figure 2C). That flow weakened during Saturday: 5.6 m/s at 1200 UTC, 2.6 m/s at 1800 UTC, 1.8 m/s at 2100 UTC. The camp wind followed, dropping below 20 mph near 2000 UTC and to near calm by 2120 UTC.

Field observation, 2200 UTC Saturday. The camp reports calm air and no snow plumes on the ridge tops, where plumes were visible earlier in the day. That agrees with the model picture of the ridge-level wind dying, and it is the reason this forecast keeps tonight quiet even though the AMPS model still shows 33 to 39 mph (53 to 63 km/h, 15 to 17 m/s) at the lake overnight. The ridge-level southerly stays below 4 m/s until Sunday morning. On the one earlier night this season with flow that weak aloft (26 November), no drainage wind developed.

What is not known. No instrument measures wind or temperature on the plateau or in the troughs, so the link to the ridge-level wind rests on model data and three nights of station record. The largest gusts exceed what gravity-driven flow alone explains and probably draw momentum from aloft through breaking waves or rotors below the rim; that is inference, not measurement.

Discussion 2. Onset of the coastal storm

The system. A low-pressure system tracks along the coast of Queen Maud Land on Sunday and Monday. Novolazarevskaya reported overcast sky at 1800 UTC Saturday after two clear days, the first sign of it. Sea-level pressure there was 996 hPa at 1800 UTC; AMPS lowers it to 988 hPa by 1800 UTC Sunday and brings it back to 992 to 993 hPa on Monday. All of the models used here agree on the timing to within about three hours.

How it differs from the drainage wind. The drainage wind was local: strong at the lake, calm at the coast, under a clear sky. The storm is regional. The wind above the mountains turns east and climbs from under 4 m/s at 0600 UTC Sunday to 13 m/s by 1500 UTC and 17 to 18 m/s by 1800 UTC, then holds near 19 to 20 m/s through Monday and Tuesday (Figure 2C). Near the

surface the flow backs from south through southeast (about 140 degrees by Sunday evening) to east-southeast and east on Monday. Coastal storms draw air from the ocean and usually bring cloud and snow. This one is forecast to stay dry inland: no model produces snowfall at the lake, and cloud is partial.

What the camp should see. Direction controls exposure. While the wind is from the southeast it reaches camp across the southeastern troughs, and in that sector this season the camp station has recorded 1.3 to 1.9 times the global-model wind, with gusts near twice the model wind. That gives 25 to 45 mph (40 to 72 km/h, 11 to 20 m/s) with gusts of 45 to 70 mph (72 to 113 km/h, 20 to 31 m/s) from Sunday afternoon to early Monday. Once the flow turns east of about 125 degrees, expected between 0600 and 1200 UTC Monday, the camp sits in the lee of the east wall; in 91 hours of easterly flow this season the camp averaged about half the model wind. With 19 to 20 m/s crossing the wall overhead, sharp lee-side gusts of 50 to 60 mph (80 to 97 km/h, 22 to 27 m/s) remain possible on Monday and Tuesday.

Signs of onset to watch for at camp: a steady fall in barometric pressure (the station read 924 hPa at 2200 UTC Saturday); high cloud arriving from the north; wind settling in the southeast instead of wandering; snow plumes returning to the eastern and southern ridge tops.

Novolazarevskaya and the coast

Light wind and overcast at 1800 UTC Saturday (3 m/s). AMPS gives 10 to 12 m/s (22 to 27 mph, 36 to 43 km/h) on Sunday, a peak of 16 to 17 m/s (36 to 38 mph, 58 to 61 km/h) from 0000 to 0600 UTC Monday, about 15 m/s at midday Monday, and 10 to 12 m/s through Tuesday, with no precipitation. AMPS overstated the southerly at Novolazarevskaya on Saturday morning (6 m/s forecast, 2 m/s observed), so its 10 m/s for early Sunday is doubtful; the Sunday afternoon to Monday wind is the storm itself and is better supported.

Confidence, and how the last forecast performed

Element	Confidence	Basis
Quiet tonight	Medium to high	Station calm, ridge plumes gone, ridge-level wind under 4 m/s. Against it: AMPS keeps the drainage running.
Storm onset Sunday 0900 to 1500	Medium	All models agree on the pressure fall and the easterly aloft; timing uncertain by about 3 hours.
Peak strength Sunday night	Medium to low	Camp response to a strong southeast flow is thinly sampled. AMPS: 36 to 42 mph. Global models: 15 to 25 mph before the local correction.
Easing Monday	Medium	Depends on when the wind turns east of about 125 degrees. If late, Monday morning stays as strong as Sunday night.

Previous forecast	Forecast	Observed	Result
Friday night gale (issued 2335 UTC 27 Nov)	35 to 50 mph, gusts 55 to 70	38 to 42 mph hourly, gust 72	Verified; top gust 2 mph over
Saturday daytime (issued 0825 UTC)	28 to 42 mph, gusts 45 to 60	23 to 36 mph hourly, gusts 48 to 59	Verified; one hour below range
Saturday evening (issued 1505 UTC)	35 to 50 mph, gusts 55 to 75	Fell from 34 mph to near calm by 2120	Missed. The forecast leaned on AMPS; the ridge-level wind data that show the shut-off were not available at issue time.

Sources and method

Camp weather station (2 m above the lake ice, 5-minute records to 2225 UTC 28 Nov). AMPS (Antarctic Mesoscale Prediction System, NCAR) domain 2, runs of 0000 and 1200 UTC 28 Nov, read at the lake grid point and at Novolazarevskaya through forecastantarctica.com, a third-party rendering not intended for operational use. ECMWF IFS deterministic run and 51-member ensemble, GFS 31-member ensemble and GEM 21-member ensemble, through Open-Meteo. MET Norway Locationforecast. Novolazarevskaya surface reports (WMO station 89512) through OGIMET. REMA 32 m elevation mosaic (Polar Geospatial Center). Not available for this issue: the ICON and UKMO models. Method: the forecast starts from the model consensus on the large-scale flow, then applies ratios of camp wind to model wind measured at the camp station this season, sorted by wind direction, with the terrain analysis deciding which sector applies.

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